

REMARKS

Summary of the Office Action

In the Non-Final Office Action dated August 14, 2002, claims 1-3, 6-9 and 12 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,104,467 to Nakahara et al. (hereinafter Nakahara). Claims 1, 4-5, 7 and 10-11 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,086,443 to Shin et al. (hereinafter Shin).

Summary of the Response to the Office Action

Applicant thanks the Examiner for the courtesies extended during the interview held December 11, 2002. Claims 3 and 9 have been canceled without prejudice or disclaimer. Claims 1 and 7 have been amended to substantially incorporate the subject matter of canceled claims 3 and 9, respectively, e.g., to recite that the second cell gap is narrower than the first cell gap. Proper support for the amendment made to claims 1 and 7 can be found in the specification at least at page 12, lines 10-13 and page 13, lines 9-13. Claims 1 and 7 have also been amended to recite that the second heating process is sufficient to soften the seal material. Upon entry of this Amendment, claims 1-2, 4-8 and 10-12 are pending.

Attached hereto is a marked-up version of the changes made to the application by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

The Rejections under 35 U.S.C. §103(a) based on Nakahara

Claims 1-3, 6-9 and 12 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,104,467 to Nakahara.

As indicated in the Interview Summary Form, the Examiner agrees that the amended claims overcome Nakahara. However, if for any reason the Examiner may consider this rejection to apply to the newly amended claims, the rejection is traversed as being based upon a reference that neither teaches nor suggests the novel combination of features recited in the claims.

Independent claims 1 and 7 recite a method of fabricating a liquid crystal display panel including amongst other steps, the step of performing a first pressurizing and heating process on the first and second substrates to form a first cell gap, followed by the step of injecting a liquid crystal material into the first cell gap.

Nakahara teaches a method for manufacturing liquid crystal display devices including amongst other steps, pressing one or a plurality of liquid crystal display devices while increasing the pressure at a "normal temperature of 20 to 40°C (the room temperature with which the liquid crystal cell is familiarized without performing heating)" (column 6, line 63 through column 7, line 2). Nakahara further discloses releasing the pressure applied at a normal temperature (column 7, lines 7-10), pressing the liquid crystal display device while increasing the substrate temperature by heating them, subjecting each liquid crystal display device to an "after-baking" process, and infusing a liquid crystal material, followed by the sealing of the liquid crystal infusing opening (column 7, lines 26-32). Accordingly, Nakahara appears directed to a method of forming a liquid crystal display by first pressing the substrates at a normal temperature (i.e., without

heating) forming a first cell gap, pressing the substrates at a higher temperature, and finally injecting the liquid crystal.

In contrast to the claimed invention as a whole, Nakahara does not appear to teach or suggest at least the claimed combinations comprising forming a first pressurizing and heating process to form a first cell gap, injecting a liquid material into the first cell gap and subsequently performing a second pressurizing and heating process to form a second cell gap as recited in claims 1 and 7. Accordingly, Nakahara fails to anticipate or render obvious the claimed invention.

Moreover, in column 5, lines 65 through column 7, line 32, Nakahara discloses pressing a liquid crystal display device 20 at a normal temperature without performing heating. Thereafter, Nakahara teaches releasing the pressure and applying pressure once again to the liquid crystal display device, but at a higher pressure than the first, while heating the substrates. Subsequently, Nakahara discloses infusing liquid crystal material into the device 20 through opening 14 and sealing the liquid crystal infusing opening 9 (column 7, lines 25-31). Accordingly, Nakahara discloses infusing liquid crystal after performing a second pressurizing process, contrary to the present claims, which recite injecting liquid crystal material after performing a first pressurizing and heating process. Furthermore, Nakahara fails to teach or suggest at least the step of performing a first pressurizing and heating process.

As pointed out in MPEP §2131, "[t]o anticipate a claim, the reference must teach every element of the claim. Thus, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros v. Union Oil Co. of California*, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987)."

Similarly, MPEP §2143.03 instructs that “[t]o establish a *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974).”

Accordingly, for the aforementioned reasons, Applicant respectfully asserts that the rejection of independent claims 1 and 7 under 35 U.S.C. §103(a) based on Nakahara should be withdrawn.

In addition, Applicant respectfully asserts that dependent claims 2, 4-6, 8 and 10-12 are allowable at least because of their dependence on claims 1 and 7, as amended, and for the reasons set forth above. Allowance of claims 1-2, 4-8 and 10-12 is therefore respectfully requested.

The Rejections Under 35 U.S.C. §103(a) based on Shin et al.

Claims 1, 4-5, 7 and 10-11 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,086,443 to Shin et al.

To the extent that the Examiner may consider this rejection to apply to the newly amended claims, the rejection is traversed as being based upon a reference that neither teaches nor suggests the novel combination of features recited in the claims.

Independent claims 1 and 7, as amended, recite a method of fabricating a liquid crystal display panel including amongst other steps, the step of “performing a second pressurizing and heating process on the first and second substrates to form a second cell gap, wherein the second heating process is sufficient to soften the seal materials and the second cell gap is narrower than

the first cell gap.” At least the claimed combinations comprising a “second heating process sufficient to soften the seal materials” are not taught or suggested by Shin.

The Office Action relies upon Fig. 1 column 1, lines 21-48, Figs. 3-6, experiment 1, column 6, lines 15-39 of Shin for an alleged teaching of a method of fabricating a liquid crystal display panel. Shin discloses a method of manufacturing liquid crystal display devices including amongst other steps, applying a first sealant on at least one of a first and second substrates and hot-pressing the first and second substrates, injecting a liquid crystal material into the cell cavity through an injection opening (column 3, lines 11-25). Shin further discloses in Fig. 6, applying a pressure by seal plate 12, and while maintaining a pressure P2, a second sealant which can be hardened by ultraviolet light is mixed with the spacers (column 5, lines 49-53). Contrary to Shin, the present claims recite a second pressurizing and heating process, wherein the second heating process is sufficient to soften the seal materials. In contrast, Shin appears to teach hardening an injection hole sealant with ultraviolet light. However, it is Applicant’s understanding that once a polymer seal material is cured with ultraviolet light, further ultraviolet light exposure will not soften the seal material. Thus, to the extent the Examiner may consider exposure to ultraviolet light to be a “heating process,” ultraviolet light would not soften the seal material, as claimed. Accordingly, Shin fails to teach or suggest these claimed combinations.

MPEP §2143.03 instructs that “[t]o establish a *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974).”

Accordingly, Applicant respectfully asserts that the rejection under 35 U.S.C. §103(a) should be withdrawn at least because Shin does not appear to teach or suggest at least the

claimed combinations comprising a second pressurizing and heating process, wherein the second heating process is sufficient to soften the seal materials.

Therefore, Applicant respectfully requests that the rejection of independent claims 1 and 7 be withdrawn. In addition, Applicant respectfully asserts that dependent claims 4-5 and 10-11 are allowable at least because of their dependence of claims 1 and 7, as amended, and the reasons set forth above. Allowance of all pending claims is therefore requested.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration of this application, withdrawal of all rejections, and the timely allowance of all pending claims.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite the prosecution.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1 and 7 have been amended as follows:

1. (Amended) A method of fabricating a liquid crystal display panel having first and second substrates, the method comprising the steps of:

forming a first and second orientation films on the first and second substrates, respectively;

forming a seal material at edges of the first substrate;

assembling the first and second substrates with each other;

performing a first pressurizing and heating process on the first and second substrates to form a first cell gap;

injecting a liquid crystal material into the first cell gap;

performing second pressurizing and heating process on the first and second substrates to form a second cell gap, **wherein the second heating process is sufficient to soften the seal**

material and the second cell gap is narrower than the first cell gap; and

sealing the second cell gap.

7. (Amended) A method of fabricating a liquid crystal display panel having first and second substrates, the method comprising the steps of:

assembling the first substrate with the second substrate;

performing a first pressurizing and heating process on the assembled substrates to have a first cell gap;

injecting a liquid crystal material into the first cell gap;

performing second pressurizing and heating process on the substrates to have a second cell gap, wherein the second heating process is sufficient to soften the seal material and the second cell gap is narrower than the first cell gap;

sealing the second cell gap; and

cutting the sealed panel into a unit cell.

Claims 3 and 9 have been canceled without prejudice or disclaimer.